REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated October 1, 2007. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1-14 stand for consideration in this application. Claims 1 and 9-10 are being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. A new claim 14 is being added. All amendments to the application are fully supported by the specification. Applicant hereby submits that no new matter is being introduced into the application through the submission of this response.

Formality Rejection

Claims 9-10 were objected to for improper dependency.. As indicated, the claims are being amended as required by the Examiner. Accordingly, the withdrawal of the outstanding informality rejection is in order, and is therefore respectfully solicited.

Allowable Subject Matter

Claims 6-8 will be allowed after being rewritten into independent form to include all limitations of the base claim and any intervening claims.

Prior Art Rejections

Claims 1-5 and 9-10 were rejected under 35 U.S.C. §103 (a) as being unpatentable over Donovan (US 2003/0131722), and claim 11 was rejected Claims 1-5 and 9-10 were rejected over Donovan'722 in view of Noel et al. (US 5,574,203). Applicants have reviewed the above-noted rejections, and hereby respectfully traverse.

The blasting method of processing at least one bomb (for example, the embodiment depicted in Fig. 4) to be processed of the present invention, comprises: forming an explosive layer on an outermost surface of the bomb to be processed having a casing 10; and exploding the explosive layer. The explosive layer comprises a first explosive layer 31 formed around the outermost surface of the casing 10 and a second explosive layer 32 formed as to surround

the first explosive layer 32. An explosive in the second explosive layer 32 has a higher explosion velocity than an explosive in the first explosive layer 31. The second explosive layer 32 is exploded first and then the first explosive layer 31 is exploded after passing a certain time interval ([0010]; "*the second explosive layer explodes first, and the inner first explosive layer explodes then as it is compressed by the high-speed detonation of the second explosive layer.*" [0069]]) by igniting an ignition region of the second explosive layer 32.

As recited in claims 2-3 & 14, the casing 10 is cylindrical in shape and the ignition region is placed at an intersection of the axis of the casing 10 with the second explosive layer 32 and on top of the second explosive layer 32; and no first explosive layer 31 is formed between the ignition region and a top region of the casing. A conic gap provided between the second explosive layer 32 and the top region of the casing 10 (Fig. 8; [0049]).

With such a constitution, the first explosive layer 31 explodes after being compressed by the high-speed detonation of the second explosive layer 32. The invention thus obtains a strong detonation force, even when an explosive having a low explosion velocity is used in the first explosive layer ([0010]). In addition, the invention directs the scattering velocity of the bomb shell fragment particles inward, because the detonation vector of the first explosive layer heads inward ([0011]; Fig. 7; [0046]-[0048]). Further, the detonation vector of the explosive present inside the casing 10, which is inherently directed outward, is changed to a detonation vector directed inward or in parallel, as it is driven by the inward detonation vector of the explosion in the first explosive layer 31 ([0012]). Thus, the invention reduces the velocity of the bomb shell fragments scattering in the diameter direction by explosion and avoid the damage of its vessel, for example, when the bomb is exploded in the vessel (Fig. 5). The invention thus obtains a strong detonation force, even when an explosive having a low explosion velocity is used in the first explosive layer ([0010]).

Applicants respectfully contend that none of the cited references teaches or suggest that "the first explosive layer 31 of a lower explosion velocity being provided directly on the casting and exploding ***after*** being compressed by the high-speed detonation of the second explosive layer 32" as the present invention.

In contrast, Donovan explicitly teaches away form the present invention by ***simultaneously*** detonating a an explosive material 7 (arguably corresponding to the first explosive layer of the present invention) and an explosive material 6 (arguably corresponding to the second explosive layer), and then within micro-seconds in which explosive forces of a bomb are counterbalanced by the implosive forces of the explosive materials 6, 7([0034]).

The present invention intentionally explores the outer second explosive layer 32 first, even the whole process happens in a scare of micro-seconds as asserted by the Examiner.

In particular, the explosive material 7 acts as the counterbalance to the bomb to be processed in case only the explosive material 7 is available ([0029]). Alternatively, the explosive material 7 acts in a unified manner with the explosive material 6 if the outer explosive material 6 is additionally provided ([0034]). In Donovan, it makes no difference if the counterbalance is obtained by the explosive material 7 singly or by the outer explosive material 6 in conjunction with the inner explosive material 7. In the latter case, the outer explosive material 6 gives only an additional counterbalancing force to supplement the inner explosive material 7.

Donovan merely discriminates the explosive layers by states: pourable/fluid vs. solid/flexible ([0032]), but not by high vs. low explosion velocities, much less their respective roles as the present invention. Since Donovan simply does not consider different explosion velocities, it is intuitive for one skilled in the art to assume the (1) scenario based upon the teachings of Donovan, rather than selecting the (3) scenario which was deliberately designed by the present invention.

explosion velocities	(1) Donovan	(2)	(3) Invention
2nd/outer layer	same	L	H
1st/inner layer	same	H	L

In the present invention, the outer/second explosive layer 32 of high-speed detonation explodes first, and the inner/first explosive layer 31 then explodes after being compressed by the high-speed detonation of the second explosive layer 32, which enables the detonation vector of the first explosive layer 31 to head inward and thereby the scattering velocity of the bomb shell fragment particles to direct inward as depicted in Fig. 7. The present invention intentionally explores the outer second explosive layer 32 first, even if the two layers 31, 32 were accidentally ignited at the same time, since the outer/second explosive layer 32 detonates faster than the inner/first explosive layer 31, the first explosive layer 31 still gets compressed by the second explosive layer 32 to direct the scattering velocity of the bomb shell fragment particles inward, prior to the exploration of the bomb.

As admitted by the Examiner (p. 3, lines 3 & 10), Donovan fails to specify the particular arrangement of the explosive layers 6 & 7. On skilled in the art would not make "the first explosive layer 31 of a lower explosion velocity explode ***after*** being compressed by the high-speed detonation of the second explosive layer 32" as claimed by the Applicants based on the above prior teachings except by using Applicants' invention as a blueprint. Applicants will point out that a rejection based on hindsight knowledge of the invention at issue is improper.

Contrary to the Examiner's assertion, the arrangement of the explosive layers of the present invention provides "unexpected results," including "obtaining a strong detonation force even when an explosive having a low explosion velocity is used in the first explosive layer," thus is not obvious to one skilled in the art. The invention explores the first explosive layer 31 of a lower explosion velocity ***after*** it is compressed by the high-speed detonation of the second explosive layer 32 to achieve the unexpected results or properties which are unknown and non-inherent functions in view of Donovan, Noel or their combination. Since Donovan, Noel or their combination do not consider different explosion velocities or take advantage of ***the (3) selection of outer/faster explosion velocity and inner/slower explosion velocity***, than do not inherently achieve the same results. In other words, these advantages would not flow naturally from following the teachings of Donovan, Noel or their combinations. The presence of these unexpected properties is evidence of nonobviousness. MPEP§716.02(a).

> *"Presence of a property not possessed by the prior art is evidence of nonobviousness. In re Papesch, 315 F.2d 381, 137 USPQ 43 (CCPA 1963) (rejection of claims to compound structurally similar to the prior art compound was reversed because claimed compound unexpectedly possessed anti-inflammatory properties not possessed by the prior art compound); Ex parte Thumm, 132 USPQ 66 (Bd. App. 1961) (Appellant showed that the claimed range of ethylene diamine was effective for the purpose of producing " 'regenerated cellulose consisting substantially entirely of skin' " whereas the prior art warned "this compound has 'practically no effect.' ").*

Applicants further contend that the mere fact that one of skill in the art could rearrange Donovan, Noel or their combination to meet the terms of the claims is not by itself sufficient to support a finding of obviousness. The prior art must provide a motivation or reason for one skilled in the art to provide the unexpected properties, such as "obtaining a

strong detonation force even when an explosive having a low explosion velocity is used in the first explosive layer", without the benefit of appellant's specification, to make the necessary changes in the reference device. *Ex parte Chicago Rawhide Mfg. Co.*, 223 USPQ 351, 353 (Bd. Pat. App. & Inter. 1984). MPEP§2144.04 VI C.

Thus, the cited references, either individually or in combination, cannot and do not show or suggest each and every feature of the present invention as claimed in the independent claim 1. Rather, the present invention as claimed is distinguishable and thereby allowable over the prior art of record.

Conclusion

In view of all the above, Applicant respectfully submits that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

Respectfully submitted,

Stanley P. Fisher
Registration Number 24,344

Juan Carlos A. Marquez
Registration Number 34,072

REED SMITH LLP
3110 Fairview Park Drive
Suite 1400
Falls Church, Virginia 22042
(703) 641-4200
December 28, 2007
SPF/JCM/JT